Preliminary Program
Fifth International Workshop on Spallation Materials Technology
(updated May 7, 2002)

Sunday May 19

4:00-8:00 Registration

6:00-8:00 Reception

Monday May 20

7:30 Coffee, juice, rolls

Opening

8:30 Welcome
Louis K. Mansur, Oak Ridge National Laboratory, Oak Ridge, TN

Spallation Facilities and R&D Programs I
Co-chairs: Mansur and Wechsler

8:40 Materials Related R&D Work for the ESS Target Stations
Guenter Bauer, Forschungszentrum Jülich, Germany

9:20 Development of MW-Class Solid Target for Spallation Neutron Source
Masayoshi Kawai, High Energy Accelerator Research Organization (KEK), Japan

10:00 Overview of the Spallation Neutron Source with Emphasis on Target Systems
Tony Gabriel, Oak Ridge National Laboratory, Oak Ridge, TN

10:40 Break

11:05 SNS Mercury Target Development
John R. Haines, Oak Ridge National Laboratory, Oak Ridge, TN

11:35 Materials R&D for the Spallation Neutron Source
Louis K. Mansur, Oak Ridge National Laboratory, Oak Ridge, TN

12:05 Lunch (on your own)

Spallation Facilities and R&D Programs II
Co-chairs: Gabriel and Kawai

2:05 AAA Program: Overview of the Transmutation Science Activities
Kemal Pasamehmetoglu, Los Alamos National Laboratory, Los Alamos, NM

2:45 The Progress of SINQ Target Irradiation Programs, STIP-I to –III
Yong Dai, Paul Scherrer Institut, Switzerland

3:15 Low Temperature Tensile Properties of Steels Containing High Concentrations of Helium
Hans Ullmaier, ESS Projekt, Forschungszentrum Jülich

3:45 Break

4:10 The Effect of Cascade-induced Gas Resolution on Bubble Formation in Metals
Helmut Trinkaus, Forschungszentrum Jülich, Germany

4:40 The MEGAPIE Target—A Challenge for Materials
Friedrich Groeschel, Paul Scherrer Institut, Switzerland

5:10 Hypothetical Accident Analyses on the MEGAPIE Lower Target Enclosures
Friedrich Groeschel, Paul Scherrer Institut, Switzerland

Tuesday May 21

7:30 Coffee, juice, rolls

Cavitation Erosion and Fatigue
Co-chairs: Kikuchi and Ullmaier

8:15 R&D on Mercury Target Pitting Issue
Kenji Kikuchi, Japan Atomic Energy Research Institute, Japan

8:45 SNS Target Tests at the LANSCE-WNR in 2001
Bernie Riemer, Oak Ridge National Laboratory, Oak Ridge, TN

9:15 Cavitation Damage in a Mercury-Filled Container Irradiated by 800 MeV Proton Pulses
John Hunn, Oak Ridge National Laboratory, Oak Ridge, TN

9:45 Preliminary Evaluation of Cavitation Resistance of Type 316LN Stainless Steel in Mercury Using a Vibratory Horn
Steven Pawel, Oak Ridge National Laboratory, Oak Ridge, TN

10:15 Break

10:40 Influence of PbBi Environment on the LCF Behavior of SNS Target Container Materials
Dietmar Kalkhof, Paul Scherrer Institut, Switzerland

11:10 High Strain Fatigue Properties of the F82H Ferritic Martensitic Steel Under Proton Irradiation
Pierre Marmy, Paul Scherrer Institut, Switzerland

11:40 Environmental Effects on Fatigue Behavior of Type 316 Stainless Steel for the Application of Spallation Neutron Source
Peter K. Liaw, University of Tennessee, Knoxville, TN

12:10 The Effect of Mean Stress on the Fatigue Behavior of 316LN Stainless Steel in Air and Mercury
Joe P. Strizak, Oak Ridge National Laboratory, Oak Ridge, TN

12:40 Lunch (on your own)

Irradiated Materials I
Co-chairs: Dai and Haines

2:30 Comparison of Fission Neutron and Proton/Spallation Neutron Irradiation Effects on the Mechanical Behavior of 316L Stainless Steel
Stuart A. Maloy, Los Alamos National Laboratory, Los Alamos, NM

3:00 Tensile Properties of 9Cr-1Mo, Zr-4 and Al 5754 Irradiated with High Energy Protons and Neutrons
Jean Henry, CEA, France

3:30 Tensile Properties of Inconel 718 After Low Temperature Neutron Irradiation
Thak Sang Byun, Oak Ridge National Laboratory, Oak Ridge, TN

4:00 Break

4:25 Tensile Properties of Ferritic/Martensitic Steels Irradiated in HFIR and Comparison with Spallation Irradiation Data
Kenneth Farrell, Oak Ridge National Laboratory, Oak Ridge, TN

4:55 Mechanical Properties of Martensitic Steels Irradiated at ≤ 350°C in SINQ Target-3
Yong Dai, Paul Scherrer Institut, Switzerland

5:25 Microstructure in Martensitic Steels 9Cr-1Mo (T91) and F82H after Irradiation in SINQ Target-3
Xuejun Jia, Paul Scherrer Institut, Switzerland

Spallation Target Investigations
Chair: Hunn

8:00 Liquid Metal Target Tests at ISOLDE
Adrian Fabich, CERN

8:30 The Preliminary Study of the Bubble Dynamics in Thermally-Shocked Liquid-Metal Target
Kenji Kikuchi, Japan Atomic Energy Research Institute, Japan

9:00 Summary of the 3rd Workshop on Material Technology for Spallation Neutron Source
Masayoshi Kawai, High Energy Accelerator Research Organization (KEK), Japan

Wednesday May 22

7:30 Coffee, juice, rolls

Irradiated Materials II
Co-chairs: Henry and Liaw

8:15 Radiation Damage at the Aluminum Entrance Window of the SINQ Mark II Target
Monroe S. Wechsler, North Carolina State University, Chapel Hill, NC

8:45 Neutronic Calculation and Dosimetry Analysis for SINQ Target Irradiation Experiments, STIP-I and STIP-II
Yong Dai, Paul Scherrer Institut, Switzerland

9:15 Assessment of Lead-Bismuth Eutectic Target Material with Different Charged Particles for Accelerator Driven Transmuters
Yousry Gohar, Argonne National Laboratory, Argonne, IL, USA

9:45 Structural Materials for Fusion and Spallation Sources
Lewis J. Baker, Culham Science Centre, United Kingdom

10:15 Break

10:35 High Temperature Tensile Testing of Modified 9Cr-1Mo after Irradiation with High Energy Protons
Mychailo Toloczko, Pacific Northwest National Laboratory, Richland, WA

11:05 2.5 MeV Electron Irradiation Effect of Alumina Ceramics
Michikazu Kinsho, Japan Atomic Energy Research Institute, Japan

11:35 Under Which Conditions Could Beam Pulsing in Spallation Neutron Sources Affect Radiation Damage?
Helmut Trinkaus, Forschungszentrum Jülich, Germany

12:05 End of Morning Session

12:30 Excursion (box lunch provided when boarding bus) and Dinner

Thursday May 23

7:30 Coffee, juice, rolls

Corrosion
Co-chairs: Glasbrenner and Pawel

8:15 LiSoR, A Liquid Metal Loop for Materials Investigation Under Irradiation
Thomas Kirchner, SUBATECH, Nantes, France

8:45 Preliminary Results on the Behavior of Steels and Refractory Metals Exposed to Flowing PbBi
Concetta Fazio, Brasimone Camugnano, Italy

9:15 Tensile Tests on MANET II Steel in Circulating PbBi Eutectic
Heike Glasbrenner, Paul Scherrer Institut, Switzerland

9:45 Synergy Effects of Liquid PbBi Eutectic and Hydrogen on the Embrittlement of T91 Martensitic Steel
Dominique Gorse, CNRS-CECM, France

10:15 Break

10:40 Material Corrosion-Erosion Test in PbBi
Kenji Kikuchi, Japan Atomic Energy Research Institute, Japan

11:10 Corrosion of Type 6061-T6 Aluminum in Mercury and Mercury Vapor
Steven Pawel, Oak Ridge National Laboratory, Oak Ridge, TN

11:40 Influence of Mercury Velocity on Compatibility with Type 316L/316LN Stainless Steel in a Flow Loop
Steven Pawel, Oak Ridge National Laboratory, Oak Ridge, TN

12:10 Lunch (on your own)

Discussion sessions

2:30 ***Cavitation Erosion***
Chair: Bauer
Open discussion

4:00 Break

4:25 ***Radiation Effects*** *(parallel session)*
Chair: Maloy
Open discussion

4:25 ***Corrosion*** *(parallel session)*
Chair: DiStefano
Open discussion

Progress on the STIP Collaborative Experiments
Chair: Dai

7:30 Presentations and Discussion by Collaboration Partners

Friday May 24

7:30 Coffee, juice, rolls

Irradiated Materials III
Co-chairs: Jung and Toloczko

8:15 Summary and Conclusion from PIE of Spent Targets at FZ-Jηlich
Jiachao Chen, Forschungszentrum Jülich, Germany

8:45 Microstructural Analysis of 9%Cr Martensitic Steels Containing a High Helium Concentration
Jean Henry, CEA, France

9:15 Microstructural Development and Hardness of F82H Steel Irradiated by Triple Ion Beams
Eiichi Wakai, Japan Atomic Energy Research Institute, Japan

9:45 Evolution of Void Swelling, Irradiation Creep and Tensile Properties of Russian Ferritic-Martensitic Steels Developed for Service in Lead-Bismuth Eutectic or Sodium-Cooled Reactors
Frank A. Garner, Pacific Northwest National Laboratory, Richland, WA

10:15 Break

10:40 Effect of Implanted Helium on Tensile Properties and Hardness of Martensitic and Austenitic Stainless Steels
Peter Jung, Forschungszentrum Jülich, Germany

11:10 Evolution of Radiation Damage in Inconel 718 Irradiated Using Triple Ion-Beams
Naoyuki Hashimoto, Oak Ridge National Laboratory, Oak Ridge, TN

11:40 Summary and Closing Remarks

12:20 Adjourn